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Office of Technical Assistance

Executive Office of Environmental Affairs

Commonwealth of Massachusetts



Toxics Use Reduction Case Study

1,1,1 TRICHLOROETHANE ELIMINATION AT ERVING PAPER MILLS

SUMMARY

Erving Paper Mills substituted an aqueous cleaner for 1,1,1 trichloroethane (TCA) used to clean printing plates — and eliminated TCA emissions and use by 400,445 lbs yearly while saving approximately \$400,000 annually over the cost of TCA in 1990, the last year the chemical was used.

BACKGROUND

Erving Paper uses waste paper to manufacture paper absorbent products and printed napkins. The Erving, Massachusetts, company employs 150 people. The engraved printing plates used to transfer ink onto printed napkins become streaky and dirty over time and lower the printing quality. The press then needed to be shut down to clean the plates; this process allowed TCA to evaporate into the atmosphere. The limited residue from the cleanup operation was drummed and shipped out as hazardous waste.

TUR PLANNING

Concern over health risks to its workers motivated Erving to substitute a nonhazardous alternative printing plate cleaning agent. TCA is a suspected carcinogen and contributes to destruction of the ozone layer. While Erving was aware that there could be cost savings associated with reduced TCA use, worker health and safety motivated the decision to change. About 270 hours were devoted to evaluating several products over a three month period. The main participants in the evaluation procedure were the machine operators. Erving eventually chose an aqueous cleaner to replace TCA in the cleaning process, based on effectiveness of cleaning and the lack of a strong odor. Initially, a citrus based cleaner worked equally well but the fruity smell became noxious over time. The new cleaner is a straight substitution that required no retraining or equipment purchases.

RESULTS

Reductions Achieved: By eliminating TCA at the facility, Erving reduced emissions by 400,445 pounds per year. This substitution also eliminated 1,350 pounds of hazardous waste generated in the washup procedure.

Economics: Erving no longer purchases TCA, yielding a savings of over \$400,000 annually. Disposal of four 55 gallon drums of hazardous waste contaminated with TCA is no longer necessary, which saves an additional \$1,350 annually. The research and testing required 270 hours by Erving employees. Overall the project saved Erving in excess of \$401,000 annually.

This Case Study is one of a series of such documents prepared by the Office of Technical Assistance for Toxics Use Reduction (OTA), a branch of the Massachusetts Executive Office of Environmental Affairs whose mission is to assist industry in reducing the use of toxic chemicals and/or the generation of toxic manufacturing byproducts. OTA's non-regulatory services are available at no charge to Massachusetts businesses and institutions that use toxic chemicals. For further information about this or other case studies, or about OTA's technical services, contact: Office of Technical Assistance, Executive Office of Environmental Affairs, Suite 2109, 100 Cambridge Street, Boston, Massachusetts 02202, (617) 727-3260, Fax - (617) 727-3827.

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